AutoFlagger®
Remote Control Flagging Device

by

Safety Technologies, Inc.

User Manual

Version 0.06.1

05/15/2009

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Introduction

The AutoFlagger® Automated Flagger Assistance Devices (AFADs) were designed to conform, as closely as possible, to existing flag-person based flagging operations. The physical characteristics, including the octagonal STOP silhouette and triangular SLOW insignia, are common to all existing traffic control flagging situations. This helps motorist acclimate to a new traffic control device quickly and easily.

The physical size of AutoFlagger® allows it to be seen and recognized earlier in the construction zone and aids motorists in visually differentiating it from other construction devices. Its' height makes the information discernable by cars positioned further away from the construction zone than is possible by conventional flag-persons. Its' gate arm further reinforces the stop message.

Its' wide, stable trailer was designed to afford construction zone workers all possible means of safety. Individual warning horns located on each sign head can be remotely activated to alert workers of impending danger. The red and amber strobes provide additional confirming sign position feedback to the operator and others between the signs, as well as enhancing visual information to the motorist.

AutoFlaggers® are ideally suited for use on two lane, low volume roadways. Bridge repair, pavement repair, utility work and roadside maintenance are typical uses of the devices. They can also be quite useful during incident management, and using a single unit in conjunction with a flagger can make an effective moving lane closure.

This manual covers all the essentials of the use and care of the AutoFlagger®. It is divided into sections so that the reader may choose to read only those sections relevant to him or her. The following table summarizes the sections:

Sign Head	**Setup** **Basic operations**
hand-held Remote Control	**Defaults** **Setup Options**
Maintenance	**Troubleshooting**

Getting Started

Prior to operating in an actual work zone:

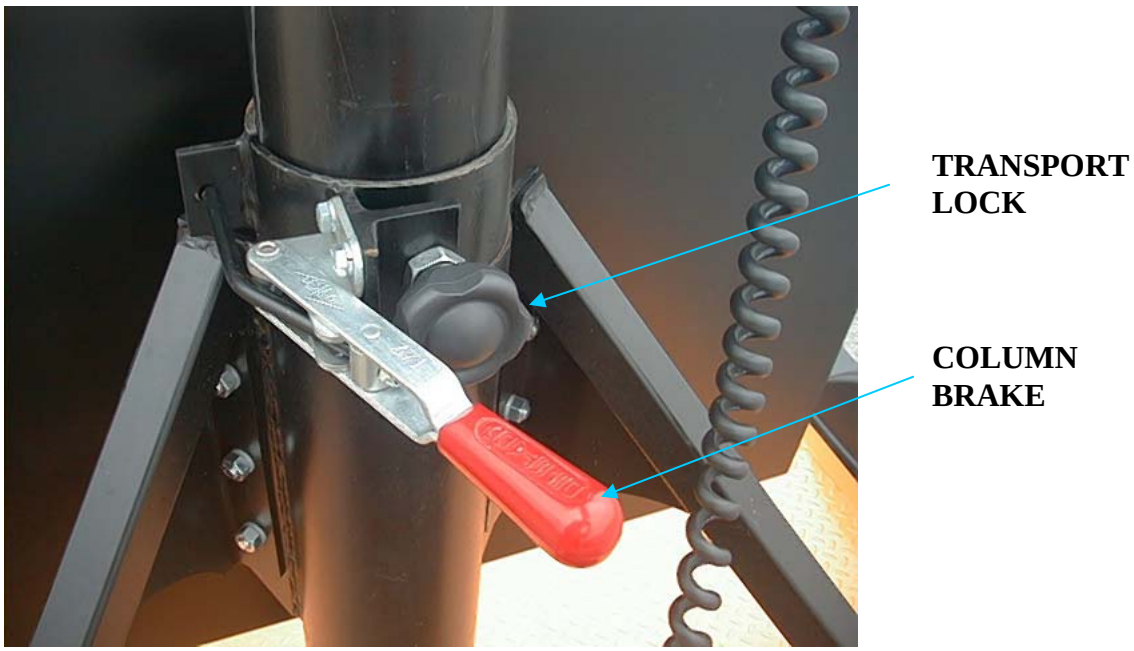
The AutoFlagger® is shipped fully assembled and ready to operate. The persons operating the device should do the following before attempting to use it in a work zone:

- Familiarize themselves with coupling and uncoupling the trailers.
- Raise and lower the solar panel.
- Release the sign head transport lock, column brake, and raise and lower the head (see below).
- Familiarize themselves with the STOP/SLOW manual override buttons, and ON/OFF buttons located on the keypad on the back of each sign (see below).
- Open and close the front cover and understand the secondary catch.
- Understand the sign position lock using the column brake.
- Locate and switch 'remote hand-held transceiver' batteries from remote to charger.
- Familiarize themselves with the overall operation and control of the system.

Sign Head Set Up and Basic Operations

After raising solar panel:

- Release column brake.
- Disengage transport lock.
- Depress the ON button momentarily. The sign head computer will boot in about 3 seconds.
- Rotate head to front position (facing traffic).
- Open front cover.
- Raise/Lower sign head.
- Use lock ring to secure front cover to column.
- CAUTION: Be sure to release lock ring from cover before lowering head and watch that the cover does not strike base of column.



SIGN HEAD RAISE/LOWER

SLOW
MANUAL OVERRIDE

SIGN HEAD POWER
PUSH ON
PUSH OFF

STOP
MANUAL OVERRIDE

COVER LOCK RING: RELEASE BEFORE LOWERING HEAD

CAUTION: WHEN LOWERING HEAD, DO NOT ALLOW COVER TO CONTACT COLUMN BASE

Hand-Held Defaults and Set Up Options

Getting Started - Defaults

- Press and hold PWR button momentarily (about ½ second), then release. Allow several seconds for the computer to boot.
- Select back light option. Depressing the STOP button turns the backlight OFF. Depressing either of the SLOW buttons leaves the backlight ON.

- If both AFAD sign heads are turned ON, you will see one of the following graphical depictions of their positions. Note that the default condition **disallows** both signs from reading SLOW simultaneously.

OR

- Both signs must be in the STOP position before either sign can be commanded to its' SLOW position.
- As a sign is changing positions, the graphics will morph as shown below.
- NOTE: The auxiliary lights positioned on the sign heads display 3 distinct positions.
    - Amber indicates that the sign is in the SLOW position.
    - Red indicates that the sign is in the STOP position.
    - The absence of either light indicates that the sign is in the process of changing positions.
- If communication between the hand-held transceiver and the sign heads is lost, the graphical STOP/SLOW will change to 'dashes'.

Set Up Options

- Set up options are accessed by first depressing the MODE button (see examples below).
- Scroll up or down by using the Up/Down keys to select the function you wish to change.
- Depress the ENTER button to make changes.
- Depress the MODE key a second time to exit the set up screens and return to the operating screen.

Example 1: to Swap Sign Sides

- Depress MODE to see the following display; and use the up/down arrows to toggle between choices.

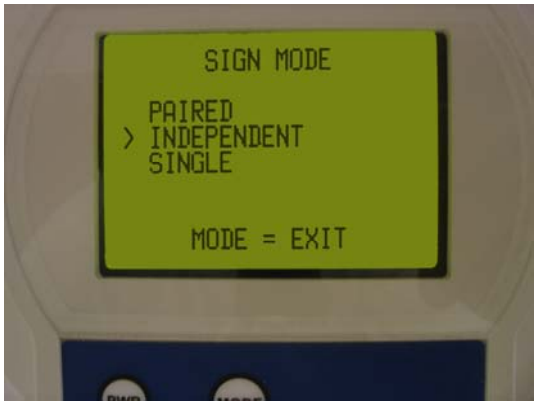
- When 'SWAP SIGN SIDES' is selected, depress the ENTER key to see the following;

This changes which sign is displayed on the left and right sides of the remote, and is intended to make it easier for the operator to remember which sign on the display corresponds to which sign in the work zone. For example, having the AFAD sign to the operator's left correspond to the left sign on the hand held remote should help avoid operator confusion.

- Depress the MODE key to exit to the operating screen.

Example 2: To allow both signs to read SLOW simultaneously, 'INDEPENDENT' (dump truck crossing) mode

- Depress the MODE key and use the DOWN ARROW key to select the 'SET SIGN MODE' function.



- Depress the ENTER button.
- Scroll down to select the 'INDEPENDENT' mode, then depress the ENTER button to activate that function.
- Depress the Mode button to exit to the operating screen.
- CAUTION: The 'INDEPENDENT' mode allows both signs to read SLOW simultaneously. It should only be used in approved circumstances.
- Note: After powering down and re-powering the hand-held in the 'INDEPENDENT' mode, reselection of that mode is required.

Example 3: 'SINGLE' sign mode

- Depress the MODE key and use the DOWN ARROW key to select the 'SET SIGN MODE' function. Then press ENTER.
- Scroll down to select the 'SINGLE' sign mode, then depress the ENTER button to activate that function.
- Depress the Mode button to exit to the operating screen.
- In this mode, the hand-held transceiver will only communicate to one sign which is the 'first' sign bound or connected to the hand-held as outlined in Example 4 below.
- If the hand-held is set to the 'PAIRED' or 'SINGLE' mode, that selection remains active (regardless of a power down and re-power sequence) until the operator changes it to another mode.
- READ THIS CAREFULLY: If you are operating two signs with two different hand-held transceivers in close proximity to each other, connect or bind one hand-held to only one sign. This will eliminate any chance of the hand-held controller communicating to another, distant sign.

Example 4: Binding (connecting) hand-held remote control to Signs

- General Overview

  Each hand-held transceiver and each sign head have a unique I.D. hard-coded into their microprocessors at the factory. An operator can select one or two signs and connect or **bind** a hand-held to them either in the yard, or on the job. The hand-held will only bind to the sign(s) assigned to it in the following procedure.

Sign Binding Procedure

- Turn ON sign 1 only. Turn ON hand-held and leave ON during entire procedure. Depress the MODE key and use the DOWN ARROW key to select the 'BIND/UNBIND SIGNS' function. Then depress the ENTER button to move to the next screen.

- Depress and hold the ENTER button again to bind the hand-held to that sign head (loud warning horn on sign will sound for about 10 seconds as confirmation). Leave hand-held turned on, turn OFF sign 1 and turn ON sign 2 then depress and hold enter again to bind second sign to the same hand-held.

- After both signs are bound to the hand-held, scroll down to 'DONE' and depress the ENTER button to complete the procedure.

- Signs may be unbound from a connected hand-held by scrolling down to the 'UNBIND ALL SIGNS' and depressing the ENTER button.

Powering Down the hand-held Transceiver

- Depress the PWR button for about ½ second.
- Depress the STOP button.

Maintenance

If a grease fitting is present, grease the head mechanism yearly. One pump only, while mechanism is rotating. Do **not** over grease.

The charger for the hand-held's batteries (in the charging bay) draws a slight amount of power continuously. When storing the AutoFlagger inside, or in the absence of sunlight for periods of time greater than 45 days, use of a trickle charger will help keep the 12 volt deep cycle batteries charged.

For longer hand-held battery life, we advise that you remove the battery packs from the storage bay charger when storing the unit for extended periods of time.

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The trailer should be maintained in accordance with generally accepted maintenance procedures. Proper tire pressure and brake adjustment, if so equipped, is advised.